Cultivating Literacies among the Youth

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Abstract

Although in the Western world illiteracy hasn't been a major problem for a long time, there are still concerns related to the literacy skills of today's youth, especially boys. Mobile technology can potentially contribute to the literacies of young people. We examine the current position and potential of mobile technology in the literacy practices of a challenging group of youth: junior ice hockey players, who due to the lack of free time hardly read at all. The study invites this group to ideate future learning environments to foster their literacies. The study reports on their usage practices and design ideas as regards mobile technology and reading. The study shows that new literacies were thoroughly embedded in the everyday life of these youth. The youth also identified opportunities for using mobile technology in their literacy practices. Implications for the design of future learning environments for the youth are discussed.

Keywords

Youth, ice hockey, literacy, new literacies, mobile technology.

INTRODUCTION

Literacy refers to the ability to read and write that is an essential skill in information exchange. Literacy is formally defined as "understanding, using, reflecting on and engaging with written texts, in order to achieve one's goals, develop one's knowledge and potential, and participate in society" (OECD 2011, p. 41). This study especially addresses the concept of new literacies, which refers to literacies enhanced with information and communication technologies (ICT), having at the same time more participatory, collaborative, and distributed nature than conventional literacies (see e.g. Lankshear and Knobel 2007; Mills 2010). Although in the Western world illiteracy has not been a major problem for a long time, there are still concerns expressed related to the literacy skills of today's youth, especially boys. For example, the Program for International Student Assessment (PISA) results of Organisation for Economic Cooperation and Development (OECD) countries from year 2009 show that literacy skills of Finnish children are among the world's best, but there has been a clear decline compared to the results from year 2000, especially regarding literacy skills of Finnish boys (Sulkunen et al. 2010). In developing countries mobile devices have been identified to be very powerful tools in advancing literacy and facilitating reading (West and Ei 2014), thus in this paper we have the special interest in how mobile technologies may contribute also to the literacies of the youth in the Western world.

The context of this study is a national LUKUINTO ("Joy of Reading") programme in Finland that was started in 2012 to find ways to encourage children to develop their literacy skills. One of the focus areas within this effort has been to get more understanding of the potential of ICT, including mobile technology, in increasing the reading eagerness and literacy skills of young people. Mobile technology especially brings a new dimension to reading as it allows reading to happen any time anywhere without having to carry the print media along. To study the potential of mobile technology in fostering young people's literacies, a very challenging target group of junior ice hockey player boys was selected. Although girls play ice hockey too, it is a minority sports among girls, while ice hockey is the most popular sports in Finland among the boys. This may be explained by the fact that ice hockey is among the few sports that can lead to a professional career in Finland as well as abroad. Hence, teenaged junior players practice a lot and are very committed to the sports. The young athletes involved in this study indeed reported of practicing the sports around 20 hours a week. According to the literature this is also the amount of practice required from junior athletes at this age, if they aim towards a professional career (e.g. Leivo 1999). Due to the lack of free time, our informants reported of not reading almost at all during their leisure time, which was almost non-existent in any case. The existing literature also indicates that lack of time is the major hindrance relating to cultural hobbies of the youth, reading as one example (Myllyniemi 2009).

This study contributes through shedding light on the outcome and process of inviting youth to ideate future learning environments for their own use. We make visible a somewhat unordinary group of research subjects, young male sports enthusiasts, and the current position and potential of mobile technology in the literacy practices of these young athletes: we invited them into the research process in order to gain understanding of their everyday usage practices, as well as to let them take part in ideating further how mobile technology could be used in fostering their literacies. This is a qualitative, exploratory in-depth study on the matter, allowing

eleven Finnish 12-15 year old boys a voice on these matters. We utilized multiple methods in our inquiry: a questionnaire, interviews and user experience evaluation of some existing mobile solutions.

When inviting young people into research process the aims of the participation can relate to generating knowledge of the youth, enabling their voices to be heard, impacting on decision making, or empowering the youth (Dyson and Meagher 2001). Moreover, Sotkasiira and colleagues (2010) maintain that youth participation can also be associated with education: participation enhances young people's personal and social skills and gives them thus useful skills for coping with their life as society members. These young people have expertise on 'what being a kid' entails and their participation is needed so that this expertise becomes utilizable in ICT design (e.g. Druin et al. 1997). Additionally, we wish that participation in such a research endeavour serves also an educational purpose of reminding these young athletes of the importance of literacy skills, in addition to the athletic ones mostly appreciated by them.

The paper is structured as follows. The next section presents research connected with youth, participation, mobile technology, and literacy. After that, the research design and the procedures of data gathering and analysis are discussed. Then the empirical results are outlined. Finally their implications are discussed, the limitations of this study are presented and paths for future work are identified.

YOUTH, MOBILE TECHNOLOGY, PARTICIPATION, AND LITERACY

Within ICT research, there is an extensive body of knowledge related to youth and mobile technology. It has long ago been indicated that today's youth are 'digital natives' that have been born in the era of computers, video games, mobile phones and the Internet, and hence ICT has been a natural part of their life from the very beginning (Prensky 2001). Therefore, it is no surprise that a lot of research on these digital natives and their ICT use has been carried out. As regards mobile technology in particular, teenager's use of mobile phones, and recently especially of smart phones, has been a popular topic (e.g. Agosto and Abbas 2010; Ames 2013; Carroll et al. 2002; Schiano et al. 2002). Within the Interaction Design and Children (IDC) research community a considerable number of studies on youth and mobile technology has also emerged. In these studies it is common that some sort of mobile solution is being proposed, e.g. a fitness (Arteaga et al. 2010; Keung et al. 2013), hygiene (Hayes and Hosaflook 2013), e-textile (Winkler et al. 2009) or video modelling (Ulgado et al. 2013) solution. In these studies, also participatory design of the mobile solutions with the youth has been in central position (Labrune and Mackay 2006; Poole and Peyton 2013). It has also been indicated that 'cool' may be an important factor when designing for the youth (Read et al. 2011). All this literature indicates that the youth are fluent mobile technology users that also should be invited as participants into mobile technology design process.

Different terms for describing the evolving literacy needs and practices have been created, to better show and understand how the traditional literacy term, referring to mainly print media, and terms like media literacies (e.g, Buckingham 2003), multiliteracies (New London Group 1996), multimodal literacies (e.g. Kress 2003), and online literacies (Alvermann 2008), relate to each other. These different terms all try to describe some new aspects of literacies needed in the current technology- and media-rich everyday life. They all can be seen broadly falling under the category of *new literacies* (e.g. Coiro et al. 2008; Gee 2012; Mills 2010) stressing the role of ICT in literacies. (New) literacy skills of 15 year olds in OECD countries were enquired in PISA 2009 study (OECD 2011). The results show that in OECD countries girls read clearly more than boys, and girls are in their skill level about one school year ahead of boys of the same age, giving thus girls a significant lead in studies (Noppari et al. 2008; OECD 2011; Sulkunen et al. 2010). This shows in Finland as well, as Finnish adolescent girls report reading as their hobby much more often (31%) than boys (7%) and boys' interest in reading wanes when they grow older. Girls also read newspapers and magazines when boys mainly read comics (Luukka et al. 2008). These results are in line with previous studies, showing that females generally are more interested in reading than males (McKenna et al. 2012). Results also show that interest in reading lessens over time (e.g. McKenna et al. 2012), and that reading is more often associated with school-work rather than pleasure (Kaplan et al. 2004). Social dimension of online literacies has been found to be important for adolescents (Kaplan et al. 2004). PISA findings also indicate a relationship between new and traditional literacies: adolescents who made online searches for information more frequently also read more diverse print material and enjoyed reading more (McKenna et al. 2012; OECD 2011), implying the significance of digital environments in reading motivation. Indeed, previous studies have indicated that literacy teachers, providing opportunities for students to engage in different technology-mediated literacy practices, especially related to special areas of interest of the students, may help students engage e.g. in the development of academic literacy (e.g. Beach and Myers 2001; Chandler-Olcott and Mahar 2003; Mills 2010; O'Brien 2001; Wilhelm et al. 1998).

Regarding mobile technology, it has been recommended that schools should more extensively utilize in their teaching the possibilities mobile technology offers (Kotilainen 2011; Naismith et al. 2004; Norrena et al. 2011; Tuomi et al. 2011), with suggestion to capitalize on young people's existing everyday practices of mobile technology use also in formal education (Pachler et al. 2010). Mobile technology makes place and time irrelevant

also from the viewpoint of learning – pupils can study wherever and whenever (Kotilainen 2011; Naismith et al. 2004; Tuomi et al. 2011). Mobile devices can nowadays replace traditional books at school as well as be extensively used for information search, processing and presentation (McFall 2005; Seisto et al. 2011). Students have already been reported of using mobile devices and e-books in their studies (e.g. Marshall et al. 2001). Children have also experimented with iPad2 devices for reading purposes (Colombo and Landoni 2011). Interestingly, these children also identified problems in such devices compared to traditional books: e-books were seen as very limited in certain senses (e.g. concerning the weight, size and smell) and were not considered as rich as traditional books expression-wise (Colombo and Landoni 2011). However, albeit youth, literary and mobile technology have been considered from the viewpoint of education and e-books, the potential of mobile technology to increase the reading interest and the new literacies among the youth has not been fully realized yet. This is the line of research to which this study attempts to contribute.

RESEARCH DESIGN

To gain understanding of junior athletes' reading habits and of the current position and potential of mobile technology in their literacy practices, we used three different methods: a questionnaire, semi-structured theme interviews and user experience evaluation. The different methods provided complementary data related to our research purposes: the questionnaire helped us to select the suitable informants for our interview and user experience evaluation studies. The user experience evaluation study enabled the informants to concretely try out some mobile solutions for reading purposes before the interview session.

The study was carried out during spring 2013 in one Finnish comprehensive school. The informants were chosen amongst the 12-15 year old pupils based on their sports hobbies that were inquired in a questionnaire. As Finnish language orthography is very regular, Finnish children acquire literacy skills very early after learning to read (Aro 2004). Thus, the age difference between informants was not considered significant in this study. The questionnaire overall addressed the following themes: Hobbies and time used for them; Reading habits; General technology usage and skills of the pupils; Mobile technology usage and skills. One of the informants was a baseball player, but he practiced the sports as extensively as the ice hockey players theirs and was thus included in the study. Background information of the informants is offered in Table 1.

Table 1. Interviewees and time they use for hobbies per week

Age/grade	Time used for ice hockey / week
12/6th	Practices four times per week, altogether 12 hours. Games at weekends in addition to that.
15/9th	Practices 5-6 times per week, altogether 15-18 hours. Typically game every weekend.
15/9th	Practices 5-6 times per week, altogether 15-16 hours.
13/7th	Practices 4-5 times per week, altogether 12-15 hours. Games may take 5 hours or even whole day.
13/7th	Practices 4 times per week, in addition to that stretching, taking care of equipment etc.
15/9th	Practices four times per week. 1-2 games per weekend.
14/8th	Practices four times per week, altogether 12 hours. Games at weekends in addition to that.
15/8th	Practices four times per week, altogether 10-12 hours. Game every weekend.
15/9th	Practices three times per week, altogether 9 hours. 1-2 games per weekend.
15/9th	Practices three times per week, altogether 6-8 hours. Games at weekends.
15/9th	Practices every day, 2 hours at time (plays in two teams).

The informants were interviewed in Finnish, in semi-structured theme interviews lasting from 15 to 30 minutes. By interviewing the informants we hoped to get a deeper understanding of the phenomenon than it would be possible to get when using solely quantitative methods or the questionnaire alone. Especially in this kind of exploratory research this is important, i.e. to be able to probe, discuss and ask additional questions. The interview themes were the following: Hobbies and free time; Reading habits; Use of mobile devices in general and for reading in particular; Envisioning mobile device use for literacy practices. Before the interviews, the interviewees also took part in an informal user experience evaluation session during which they experimented with a mini iPad and an e-reader for 15 minutes. They first familiarized themselves with the mini iPad and then performed two tasks, first, by reading part of an e-book in online service and second, by searching for information for a given schoolwork-type of purpose. After that they used the e-reader and read parts of books

loaded into the device. The user experience evaluation and the interview sessions both took place in the informants' own school, as part of their school work.

As all the interviewees were minors, a written consent was asked from their parents. The interviews were transcribed. The analysis proceeded with content analysis, by categorizing information based on the interview themes. The analysis was data-driven, but previous literature presented in section two provided us the theoretical lens for analysing the data as it had influenced the formation of the interview themes. Next the analysis results will be presented.

EMPIRICAL INSIGHTS

This section presents the current mobile technology usage habits, including reading, as well as the ideas as regards mobile technology usage in support of literacies, as expressed by our interviewees. All the interviewees had their own mobile phone in use. In addition, five of them reported of owning a computer or a laptop. Three of the interviewees had also a tablet in use.

Current mobile technology usage

When asked about their current mobile technology usage, the most common usages were related to Internet surfing and playing games. Six interviewees reported of playing games with their mobile phones:

> *I like to play some games.* (Boy, 12 years, 6th grade) *Sometimes I visit the Internet and play those games.* (Boy, 13 years, 7th grade) *Well I have surfed in the Internet and played games.* (Boy, 15 years, 9th grade)

Internet surfing included also visiting online newspaper sites and Facebook use:

> *I read some Iltasanomat, Iltalehti [online newspapers]. I check some news and if I need to search for some information.* (Boy, 15 years, 9th grade) *I watch videos or movies or the Facebook.* (Boy, 15 years, 9th grade)

Chatting or messaging with friends, mostly in Facebook, was very important, too:

> *Mostly for chatting.* (Boy, 15 years, 9th grade) *I visit the Facebook and send messages to friends.* (Boy, 15 years, 9th grade)

Current mobile technology usage in reading

When asked, the interviewees did not think they used mobile technology for reading. However, when the concept of new literacies was explained to them, it turned out that most of them used mobile technology for reading, mainly for reading messages and information in the Internet. Three of the informants still maintained that they did not use mobile technology for reading:

> *I can't remember [of reading].* (Boy, 15 years, 9th grade)

The other informants reported of reading information in the Facebook as well as news and newspapers online: especially sports and even more specifically ice hockey related news were preferred.

> *Well at least for reading in the Facebook and sometimes you may go somewhere to read some news for example.* (Boy, 13 years, 7th grade) *Iltalehti [online newspaper] I have visited to read the sports section.* (Boy, 15 years, 9th grade) *[NHL.com], well that I sometimes check, when news come in.* (Boy, 15 years, 9th grade) *If I do not have anything else to do, I may read sports literature.* (Boy, 12 years, 6th grade)

All in all, the young athletes of this study did not read that much in the traditional sense. They read very little books or magazines, but they read news and other kinds of information online. As reading happened through using ICT, in this case through using mobile devices, we can say that new literacies or multiliteracies pictured in the lives of these young athletes. Based on the results of this study, one can even claim that new literacies were thoroughly embedded in the lives of these young athletes, even though they reported of not reading in the traditional sense almost at all.

Ideas for mobile technology usage in literacy practices

We also asked our interviewees what they thought a mobile device could be used for both in school and free time. At school the interviewees thought that a mobile device could be used mainly for reading books:

> *Well, at reading lesson I would read news or some book.* (Boy, 12 years, 6th grade) *At the last mother language lesson we read Kalevala, it would be nice to read it by using that [mobile device]. I don't know how sensible that is, though.* (Boy, 15 years, 9th grade)

Another suggested purpose for mobile device use at school was information searching for school projects and

presentations:

> *For projects and presentations.* (Boy, 14 years, 8th grade) *Probably for mother language lessons or civics, we use quite often computer for that.* (Boy, 15 years, 9th grade) *Information searching, if I need to find some news for school work.* (Boy, 15 years, 9th grade)

Homework related purposes for mobile technology were also suggested: note taking at school and doing homework with the mobile device:

> *Well, you could plan with it, like take notes during school day […] And then do the homework.* (Boy, 15 years, 9th grade)

Interviewees also mentioned that mobile devices could replace heavy textbooks:

> *That pad is good. I wouldn't need to carry books to school.* (Boy, 14 years, 8th grade)

The interviewees considered the multipurpose use of mobile devices a positive thing, as a mobile device is easy to take along and use it for communicating, information searching from the Internet, and also reading:

> *You could read and do other stuff at the same time. It would be same to take this with you as a book.* (Boy, 15 years, 9th grade) *[When studying] English and Swedish, I check words if I don't know them.* (Boy, 15 years, 9th grade)

The e-reader, meant only for reading e-books, did not interest the interviewees much. They considered it difficult to use and, as a comparison, mini iPad was thought to be much more versatile and useful, especially as it was possible to e.g. play games or engage with social media.

We also asked our interviewees, based on their experiences of trying out reading with the mobile devices in the user experience evaluation sessions, whether they thought that if they had in their use a mobile device that was easy to use for reading books and other long texts, they would use it specifically for that purpose. Only two of the interviewees said that they were sure of not using a mobile device for traditional reading:

> *Well, [I would use a mobile device rather] for playing [than reading]*. (Boy, 14 years, 8th grade)

Whereas the rest of the boys were cautiously optimistic regarding reading with a mobile device:

> *Well, I wouldn't read that much, but if I had to read a book I might [use mobile device for reading]*. (Boy, 15 years, 9th grade) *I might load something [some book] if it had that application. Maybe I would read.* (Boy, 15 years, 9th grade) *It might be mainly playing [with a mobile device] but in case I wouldn't be in the mood for playing and were bored, then I might start reading with it.* (Boy, 15 years, 9th grade)

Three of the interviewees considered reading a very much possible use for a mobile device:

> *It feels like I might [read with a mobile device], you don't always have books and there's no time to go loan from a library, but this has a wide selection [of books] and you could select some book you like and start reading it.* (Boy, 12 years, 6th grade) *At least I think it was quite a lot nicer to read, and I've been lectured so much that I should read more.* (Boy, 13 years, 7th grade)

We also inquired if the use of a mobile device for reading added any interest towards reading in general. Six out of eleven interviewees felt that using a mobile device would make the reading experience somehow more positive compared to reading print books. Positive effect related to reading was often mentioned to originate from the easiness of taking the device anywhere and thus possibility to read in different places (e.g. in a bus during ice hockey related travelling):

> *I think that I got interested, that I could read some story.* (Boy, 12 years, 6th grade) *Yes, quite a lot. I have never liked reading that much, so yes it did [add interest in reading]*. (Boy, 13 years, 7th grade) *Well, it's easier with this [kind of device], especially if you are travelling. If you sit in a car, you can choose what to read.* (Boy, 15 years, 9th grade)

Easiness of acquiring new reading was mentioned as lowering the threshold for reading – the interviewees were aware that it was possible to load books to mobile devices from the Internet:

> *Well, somewhat, as there's no need to go to a shop or library to be able to read.* (Boy, 14 years, 8th grade)

One interviewee thought that a mobile device might help him overcome some of the problems he has related to reading. However, three of the interviewees felt that mobile device would not add anything special to reading, maybe even vice versa. One of those interviewees was already reading a lot, preferring traditional books.

CONCLUDING DISCUSSION

Next, our empirical results are summarized, their implications for research and practice are discussed and limitations and paths for future work are considered.

Summary of the results

This study concentrated on the current position and potential of mobile technology in the literacy practices of a challenging group: junior ice hockey players. The participatory study gave voice to this user group: it shed some light on their usage practices as well as invited them to propose design ideas as regards mobile technology and reading, hopefully contributing to the design of the future learning environments.

The results of this study showed that junior ice hockey players read very little traditional literature. Ice hockey took almost all of their free time. On the other hand, only one of the interviewees reported of having some actual difficulties related to reading of long texts; the small amount of reading was more due to lack of time and/or interest in reading. On the other hand, the results showed that new literacies were thoroughly embedded in the everyday life of these youth. This became evident when inquiring their mobile technology use. Their mobile phones had enabled and potentially also increased their literacy practices as they reported that with their mobile phones they used Facebook, chatted with friends, read online news and searched information from the Internet. Considering the small amount of free time this group of adolescents had, we can assume that without mobile phones they would have engaged in even smaller amount of literacy practices than what they currently did. It seems, however, that the use of mobile devices as such would not be enough to attract them to read more in the traditional sense of reading. These boys were aware that their parents and teachers expect them to read more and were quite positive about the idea of using mobile devices for reading, but reading itself did not seem to attract them very much, compared to ice hockey playing, with some exceptions. They thought, nonetheless, that mobility itself was a useful characteristic, and might bring in more situations where reading would be an interesting option for entertaining oneself, for instance during their ice hockey related trips around Finland.

As regards their ideas for the use of mobile technology in their literacy practices, the interviewees thought positively about the use of mobile technology to support school work. As for main purposes for this they suggested information searching and handling, and e-book reading. They were quite sceptical, though, about how much they would in practice use mobile devices for reading in the traditional sense, rather than for other purposes. Concerning their ideas, information search and analysis for schoolwork purposes and producing of text or some other contents were important. This is in line with the notion of new literacies as discussed in the literature (Lankshear and Knobel 2007; Mills 2010; OECD 2011): it fits well with the idea that new literacies are, by their nature, participatory, collaborative, and distributed (Lankshear and Knobel 2007). The informants' small interest in e-reader use can also be considered as natural as e-readers main use is reading of long texts, and our interviewees were not very interested in that.

All in all, the concept of new literacies seemed very suitable for capturing the literacy practices of this group of young people: with this concept traditional literacy is expanded to cover literacy practices relying on ICT and digital environments as well as to cover multimedia, information processing, analysis and production, and communication (Alvermann 2008; Coiro et al. 2008; Gee 2012; Kress 2003; Lankshear and Knobel 2007; Mills 2010; OECD 2011), which were all things that the interviewees also brought up. Altogether, our inquiry revealed the richness of new literacy practices in the lives of the interviewees. This became visible for most of the interviewees themselves, too, and we consider this as a valuable achievement in itself.

Implications of the study

This study has implications for the design of future learning environments. As regards the literacies of the youth, on the surface, most of these young athletes' literacy practices were almost non-existent, when literacy practices are considered from the traditional point of view as consisting mainly of book reading and writing. However, when expanding the notion of literacies, we were able to see new possibilities to foster, encourage and build on the already existing literacy skills and practices they had. As it seems that interest in print reading is waning in general, the importance of new literacies and utilizing the digital environments is even more important (cf. McKenna et al. 2012). Our results give support to the existing research results arguing for mobile devices to replace traditional books at school as well as be extensively used for information search, processing and presentation (Marshall et al. 2001; McFall 2005; Seisto et al. 2011).

Moreover, we suggest mobile technology designers to consider how they could promote literacies when designing new technologies and applications, especially for children's and young people, but also for the adult audience. This study has made visible the extensive amount of reading (as well as writing) that is involved with mobile technology use: participation in online communities, surfing the Internet and playing online games may

involve a large amount of reading and writing, albeit the texts often are quite short and in informal format and style. Nevertheless, mobile technology and ICT designers in general should become more conscious of their role in advocating and fostering the literacies of people. We see the current wide mobile technology use and the generally positive attitude towards mobile technology use in reading as an untapped possibility regarding improvement of literacy skills of people. Hence, when designing future ICT-rich learning environments, cultivation of the literacy skills of the users should be kept in mind. Additionally, when aiming to foster the literacy skills of the youth, we suggest the youth to be invited into the design process (Labrune and Mackay 2006; Poole and Peyton 2013) as well as placing an emphasis on 'cool' solutions from the perspective of the youth (Read et al. 2011). These measures likely contribute to youth adoption of the solutions designed to support such an important matter – literacies of the youth.

As regards methodological implications related to working with the youth, we emphasize the importance of inviting young people into the research process on this kind of matters. Not only did we gain valuable data on the everyday practices and usage habits of this quite unordinary group of users, i.e. insights on 'what being a junior ice hockey player' entails and what implication it may have on mobile technology design for such a user group (cf. Druin et al. 1997), but we were also able to give voice to them (cf. Dyson and Meagher 2001), the voice acting as an addition to adult educationists' and technologists' voices, talking over the heads of the youth about these matters. We also think that we even succeeded in educating the youth a bit, which can be considered as an important goal of participatory efforts as well (cf. Sotkasiira et al. 2010), as during the interviews and questionnaire study, the concepts of literacies and new literacies were discussed with the youth and during the interviews those were even related to the young people's own usage habits. Thus, the interviewees became aware of how extensively literacy practices even currently picture in their everyday life and mobile technology usage. Moreover, we wish that participation in this study served also the educational purpose of reminding these young athletes of the importance of literacy skills, in addition to the athletic ones mostly appreciated by them. One of the interviewees during the interview situation actually even pointed out his need to develop his literacy skills, already indicated by his teachers and parents, and mentioned planning to take some action as regards this matter.

On the other hand, also other kind of methodological considerations arose during the research process. As our empirical excerpts revealed, the answers of the youth in the interview situation were not always very long or detailed. This has been reported as problematic also previously (see e.g. Isomursu et al. 2004; Poole and Peyton 2013). One reason for such may be the power imbalance between the researcher and the youth (Poole and Peyton 2013). Here, important is to build rapport and a comfortable environment that can be aimed at e.g. through informal clothes and casual interaction (Poole and Peyton 2013). These issues were acknowledged during the contact with the youth, but the problems could not be totally overcome. Another explanation may be that the youth may be at a development stage during which their ability to reason about hypothetical or future situations has not been fully developed (Poole and Peyton 2013). Concrete, specific questions should be asked in addition to open-ended or future oriented ones to ease the situation (Poole and Peyton 2013). The questions concerning ideas for the future may have been challenging for the youth in this respect also in our study. However, we also asked very practical questions concerning their everyday mobile technology usage practices, so not all of our questions were challenging in this respect. Moreover, the user experience evaluation session likely contributed to easing answering our questions, although it likely also affected the responses we gained. Finally, an additional problem that arose was that in some situations the youth may have provided answers that they assumed the researchers wanted. This issue has also been discussed in the literature (Isomursu et al. 2011; Poole and Peyton 2013). In our study this may have been visible especially in the answers in which the youth indicated that they would like to utilize mobile technology in reading in the future. The responses were quite positive but also very vague, implying a possible Hawthorne effect related to novelty and trying out something new (Diaper 1990). Hence, we did not take those answers as face value.

We think our results provide valuable information for researchers and designers as well as for people working with youth at school or during their leisure time. Teachers and schools clearly could try to integrate mobile technology use more extensively into their pedagogic practices and thus into their pupils learning practices. The youth identified many opportunities for mobile technology use both at school and during the leisure time. Moreover, mobile technology plays such a prominent role in the lives of the youth already that we think it should be capitalized on. Furthermore, we think that sports clubs could use these results to find ways to support, encourage, and provide opportunities for the adolescents' reading. In this study the youth identified ways mobile technology could be used to foster reading during their ice hockey related extensive travelling around Finland. Sports clubs could explicitly advocate this kind of way of entertaining oneself during the game related travelling.

UNESCO Persepolis declaration explicitly states that literacy is a fundamental human right. In this rapidly changing technology-rich world 'literacy' means much more than simple reading and writing skills, as the different aspects of 'new literacies' show us, and literacy skills are ever more important to have to manage in the everyday life, both in Western and developing countries. Mobile devices offer pleasing, time and location

independent possibilities to practice these skills; researchers, educators and technology designers should consciously exploit and cultivate that when designing and using technology.

Limitations and paths for future work

This study has obvious limitations due to its explorative nature, as only 11 adolescents were interviewed, and the user experience evaluation sessions took only 15 minutes. In future research quantitative data could be collected regarding the key findings of this study. On the other hand, additional qualitative studies concerning a larger sample or youth with different kinds of hobbies and interests should also be carried out. In this study girls were left out but they surely deserve attention, too, although they as a group seem to possess better literacy skills than boys. Future studies could also be conducted utilizing the general interest and familiarity with mobile technology use of this age group, somehow combining literacies and mobile technologies in a creative way, offering natural opportunities for reading. Actually, after this empirical inquiry we have already taken a step towards that direction by designing for this user group a text intensive game with an ice hockey theme and received promising results. Those are out of the scope of this paper, however, but will be reported in the future.

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